

ADM1023

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Acc ac **M** c ce
S e **T** e a e M
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Features

ADM1023

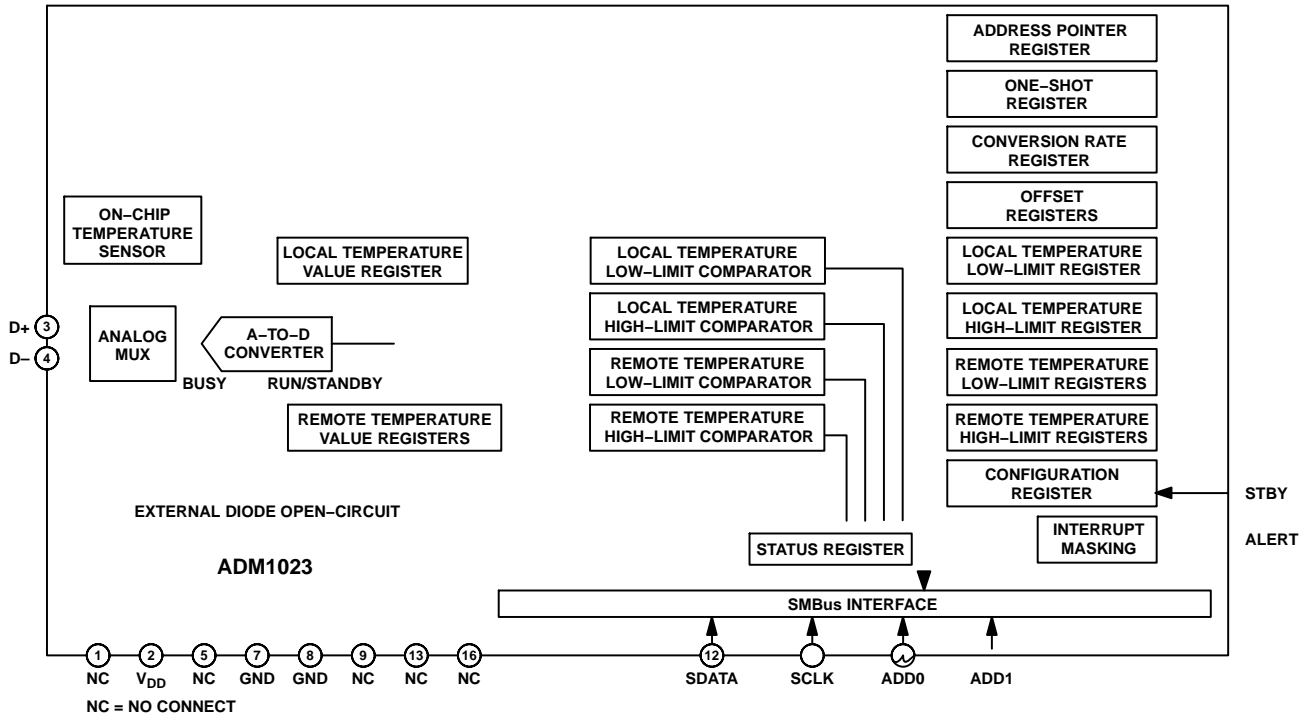


Figure 1. Functional Block Diagram

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Table 4. ELECTRICAL CHARACTERISTICS ($T_A = T_{MIN}$ to T_{MAX} , $V_{DD} = 3.0$ V to 3.6 V, unless otherwise noted. (Note 1)

Parameter	Test Conditions/Comments	Min	Typ	Max	Unit
SMBus Interface (See Figure 2)					
Logic Input High Voltage, V_{IH} STBY, SCLK, SDATA	$V_{DD} = 3.0$ V to 5.5 V	2.2			

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TYPICAL PERFORMANCE CHARACTERISTICS

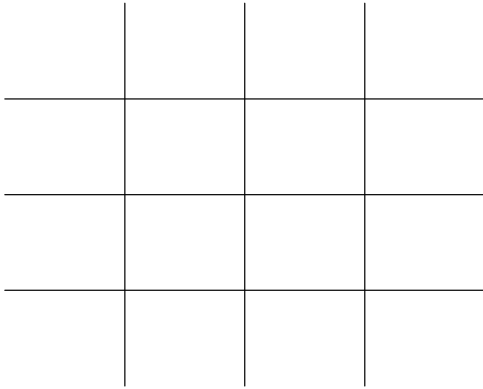


Figure 9. Temperature Error vs. Differential-mode Noise Frequency

Figure 10. Operating Supply Current vs. Conversion Rate, $V_{DD} = 5.0\text{ V}$ and 3.3 V

Figure 11. Standby Supply Current vs. Supply Voltage

Figure 12. Response to Thermal Shock

Theory of Operation
Functional Description

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Temperature Data Format

**Table 5. TEMPERATURE DATA FORMAT
(LOCAL AND REMOTE TEMPERATURE HIGH BYTE)**

Temperature (°C) (Note 1)	Digital Output
0	0 000 0000
1	0 000 0001
10	0 000 1010
25	0 001 1001
50	0 011 0010
75	0 100 1011
100	0 110 0100
125	0 111 1101
127	0 111 1111

1. The ADM1023 differs from the ADM1021 in that the temperature resolution of the remote channel is improved from 1 C to 0.125 C, but it cannot measure temperatures below 0 C. If negative temperature measurement is required, the ADM1021 should be used.

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Table 7. LIST OF ADM1023 REGISTERS

Read Address (Hex)	Write Address (Hex)	Name	Power-on Default
Not Applicable	Not Applicable	Address Pointer	Undefined
00	Not Applicable	Local Temperature Value	1000 0000 (0x80) (-128 C)
01	Not Applicable	Remote Temperature Value High Byte	1000 0000 (0x80) (-128 C)
02	Not Applicable	Status	Undefined
03	09	Configuration	0000 0000 (0x00)
04	0A	Conversion Rate	0000 0010 (0x02)
05	0B	Local Temperature High Limit	0111 1111 (0x7F) (+127 C)
06	0C	Local Temperature Low Limit	1100 1001 (0xC9) (-55 C)
07	0D	Remote Temperature High Limit High Byte	0111 1111 (0x7F) (+127 C)
08	0E	Remote Temperature Low Limit High Byte	1100 1001 (0xC9) (-55 C)
Not Applicable	0F (Note 1)	One-shot	

Table 9. STATUS REGISTER BIT ASSIGNMENTS

Bit	Name	Function
7		

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Table 12. DEVICE ADDRESSES (Note 1)

ADD0	ADD1	Device Address
0	0	0011 000
0	NC	0011 001
0	1	0011 010
NC	0	0101 001
NC	NC	0101 010
NC	1	0101 011
1	0	1001 100
1	NC	1001 101
1	1	1001 110

1. ADD0 and ADD1 are sampled at powerup only.

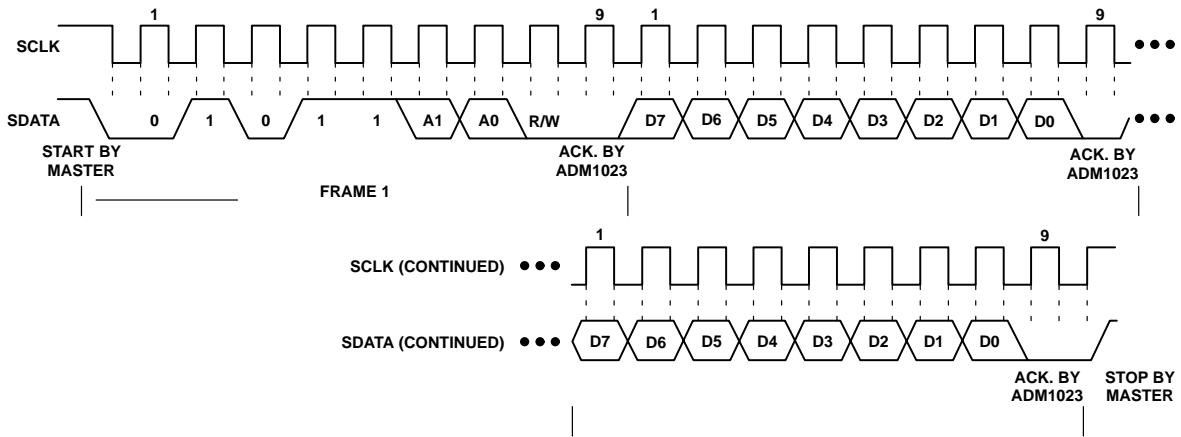


Figure 15. Writing a Register Address to the Address Pointer Register, then Writing Data to the Selected Register

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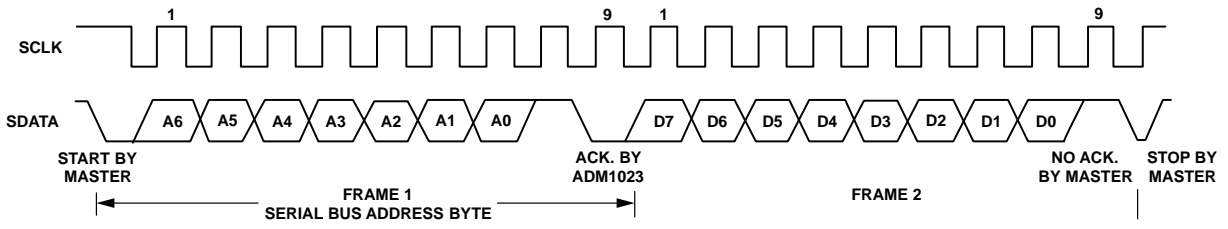
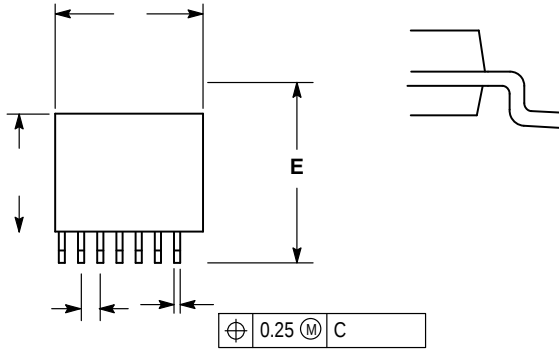


Figure 17. Reading Data from a Previously Selected Register

QSOP16
CASE 492-01
ISSUE A

DATE 23 MAR 2011

SCALE 2:1



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